



Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

November 6, 2013

Project No. 602778-005

McWhinney Development
2725 Rocky Mountain Avenue, Suite 200
Loveland, Colorado 80538-8716

Attention: Mr. Trae Rigby

**Subject: Review of Phase One Inc. Environmental Site Assessment Report
Great Wolf Lodge Resort Hotel,
City of Garden Grove, California**

Introduction

Based upon your request Leighton Consulting, Inc. (Leighton) is presenting this letter-report summarizing our review of Phase One Inc.'s (POI) Environmental Site Assessment (ESA) reports prepared for the Great Wolf Lodge Resort Hotel and Waterpark (Site) in the City of Garden Grove, California.

Findings

Phase One Inc., in their Phase I ESA report dated December 2012 (POI, 2012a), indicated with respect to local groundwater below the Site that a nearby Arco Facility located north of the Site at 12502 Harbor Boulevard with a known historical leaking underground storage tank is a potential source of groundwater contamination beneath the project Site. Further stating groundwater contamination constitutes a health hazard to personnel who will come in contact with groundwater, such as during construction dewatering activities.

A Limited Phase II ESA report was prepared by POI in December 2012 (POI, 2012b) and summarized the results of groundwater sampling at the Site to assess the potential impacts to groundwater resulting from the nearby Arco Facility. Laboratory analytical

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results concluded that lead was detected in the groundwater sample collected from the Site at a concentration below the maximum contaminant levels (MCL's) for drinking water standards. Volatile Organic Compounds (VOCs) and Semi-Volatile Compounds (SVOCs) were not detected above the laboratory reporting limit in the groundwater samples collected from the Site. Further sampling was not recommended. Phase One Inc. speculated the lead is possibly associated with hydrocarbon contamination occurring from the release at the offsite Arco Facility; however, this is most likely not the case, since the release at the Arco Facility is oxygenated gasoline from circa 1993. Oxygenated gasoline began replacing leaded gasoline in 1979.

Leighton reviewed the Quarterly Monitoring Report (Arcadis, 2013) for the Second Quarter 2013 at Arco Facility No. 05202 under Orange County Health Care Agency Case No. 93UT47. This facility, located at 12502 Harbor Boulevard has extracted and treated approximately 381,726 gallons of petroleum hydrocarbon impacted groundwater as of July 2013. The Quarterly Report identifies groundwater flow to the west at a gradient of 0.022 feet/foot indicating a relatively flat potentiometric surface. Furthermore, the report presents iso-concentration maps of the contaminant plume from the Arco Facility which indicate the plume is relatively small in area and confined primarily below the gas station, moving westerly with outward concentrations of dissolved fuel oxygenates at the leading edge of the plume of 100 µg/L (parts per billion). Additionally, monitoring well B-8 from the Arco Facility, closest to the project Site, was non-detect (ND) for all constituents in the First Quarter 2013 sampling event (Arcadis, 2013)

Conclusions

The project Site is located cross-gradient to the Arco Facility which is currently operating a remediation system actively pumping groundwater and creating a cone of depression allowing groundwater to flow locally towards the onsite well screens. Review of iso-concentration maps and analytical data in the most recent groundwater monitoring events (First and Second 2013), indicates that the dissolved phase hydrocarbon plume is located primarily beneath the gas station facility and does not appear to extend southwest of the facility, towards the Site, as indicated by laboratory results of groundwater samples collected from well B-8.

Additionally, groundwater samples collected by both POI in December 2012 and Leighton in July 2011 from the project Site were non-detect for gasoline constituents,

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further indicating that the Arco Facility has not impacted the groundwater beneath the project Site.

It is anticipated that construction dewatering at the project Site will occur while the Arco Facility is operating the remediation system therefore contaminated groundwater in the mapped plume below the Arco Facility is not expected to travel cross-gradient towards the project Site. National Pollutant Discharge Elimination System (NPDES) permits are required to be obtained prior to discharging construction related groundwater to the storm drain system. The NPDES permits will dictate the frequency at which extracted groundwater is to be sampled and analyzed. The results of each NPDES analysis should be monitored for changes in groundwater constituents during future construction dewatering that would allow for determination if offsite contamination is affecting the groundwater chemistry at which time a decision can be made as to the health hazard the groundwater may or may not pose to personnel.

Currently, based upon this information, the groundwater below the project Site is not impacted by hazardous materials and does not pose a health hazard to personnel who may come in contact with groundwater during construction dewatering operations.

If you have any questions regarding this letter-report, please call the undersigned at (949) 681-4287.



Respectfully submitted,

LEIGHTON CONSULTING, INC.

Joe Roe, PG, CEG 2456
Senior Project Geologist

JAR/lr

Attachment: References

Distribution: (1) Addressee as PDF

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REFERENCES

Arcadis, 2013, Quarterly Monitoring Report for the Second Quarter 2013, Arco Facility No. 05202, Location 12502 Harbor Boulevard, Garden Grove, California, July 18, 2013.

Leighton Consulting Inc., 2011, Groundwater Sampling and Laboratory Analysis Results for National Pollutant Discharge Elimination System (NPDES) for the Great Wolf Lodge Resort Hotel, City of Garden Grove, California, Project No. 602778-003, dated August 8, 2011.

Phase One Inc., 2012a, Phase I Environmental Site Assessment for City of Garden Grove Agency for Community Development, Harbor Boulevard Site Water Park 12581, 12591, 12625, Harbor Boulevard and 12601, 12602 Leda Lane, Garden Grove, California, June 27, 2012.

_____, 2012b, Limited Phase II Environmental Site Assessment for City of Garden Grove as Successor Agency to the Garden Grove Agency for Community Development, Harbor Boulevard Site Water Park 12581, 12591, 12625, Harbor Boulevard and 12601, 12602 Leda Lane, Garden Grove, California.

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